

Arterial supply of S.C.

1

1] ant. spinal A.

Beg Formed inside Cranial Cavity by union of Rt, Lt ant spinal A.
 Course w originate From Rt, Lt vertebral A. [4th part].

Descending Downward From Foramin magnum to enter verteb. canal in the ant median fissure and extend from medulla above to filum terminal below. [longest Artery in Body]

Supp. Ant $\frac{2}{3}$ of spinal Cord

2] Post. spinal AA (Rt-Lt)

Beg each one arise from Rt-Lt vertebral A inside The Cranial Cavit.

Course each artery Divide into 2 branches w Descend in front and beh. Dorsal root of spinal Cord.

Supp. Post $\frac{1}{3}$ of spinal Cord.

3] Radicular AA [segmental spinal AA]

* supply Spinal Cord segmentally.

* Enter vertebral Canal Through inter vertebral foramina and Divide into two Branches one Runs $\rightarrow$ Dorsal root of spinal n and the other Runs $\rightarrow$ Ventral Root.

- Their origin is Regional From :-

Cervical Region	→	Vertebral A [2nd part]
	→	Ascending Cerv. A.
Thoracic ~	→	Post. inter Costal AA
	→	Subcostal A.
Lumbar ~	→	lumbar AA.
Sacral ~	→	lateral. sacral AA.

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[2]

Venous Drainage of S.C.

Spinal Cord Drain By means of 6 tortuous longitud. veins

- [1] one vein in The median plane — anteriorly
- [2] ~ ~ ~ ~ ~ — Posteriorly
- [3] two ~ on each side of Dorsal Root of spinal N.
- [4] ~ ~ ~ ~ ~ Ventral ~ ~

This 6 longitudinal vein Drain into :-

Above

Basilar plexus of veins
[Cranial Cavity]

laterally

internal vertebral plexus of veins
[extradural space]

↓
intervertebral vein

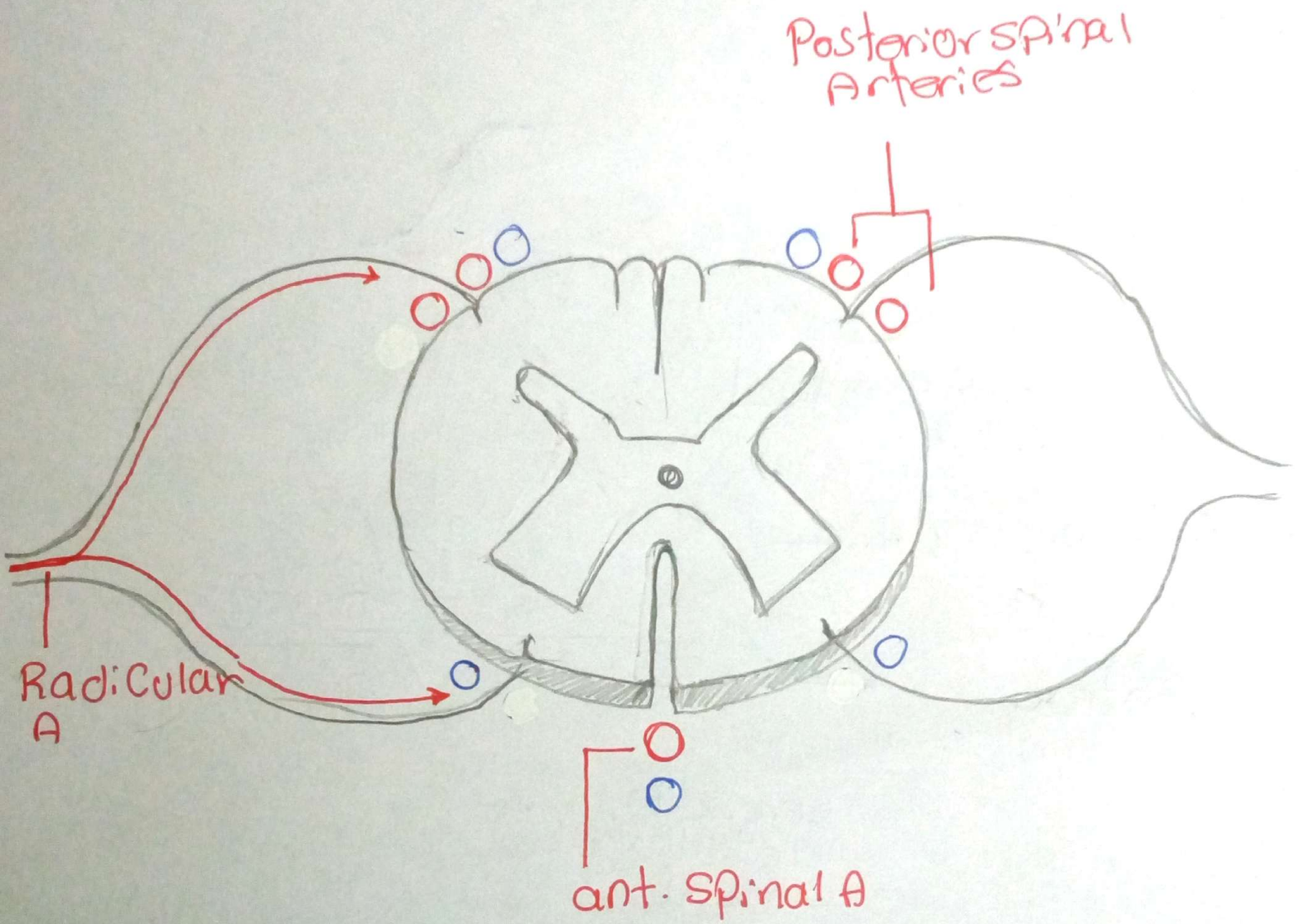
~ Come out from verteb. canal
Through vertebral foramina and
Drain into:

Cervical Region → vertebral veins → subclav.
Thoracic ~ → Post. intercost. → azygous v.
Abdominal ~ → lumbar vv → IVC
Sacral region → lat sac. v. → IIV.
internal iliac v.

Fixation of Spinal Cord

- [1] attachment of filum terminale to Dorsum of Coccyx
(anchoring Spinal Cord to Coccyx)
- [2] attachment of Denticulatum ligaments to inner
surface of Dura (anchor. S.C to Dura).
- [3] attachment of Dura to margin of Foramin magnum.
- [4] ~ ~ ~ ~ ~ of interverteb. Foramina.
- [5] Emerging of spinal nerves Form inter verteb. ~

1 2



Cerebellar Peduncles

3

Thickest

Smallest

Inferior C. Ped.

M. C. P

Sup. C. Pedunc.

Arise from Dorsolateral aspect of medulla.

From lat. aspect of Pons.

From Dorsum of M.B.

Connect Medulla → Cerebell. Pons → Cerebell. M.B → Cerebellum.

Arrangement from medial to lateral → [SIM]

1 olivo Cerebellar inf. oliv. N → Cerebellum.

Contain only Afferent fibres

1 tecto Cerebellar fibres: from Sup & inf Collic. of tectum of M.B. → Cerebell.

2 vestibulo Cerebell. fibres: vestibular N. → Cerebellum.

Cortico-Ponto-Cerebellar tract

2 ventral spino Thalamic tract: (Propricept. → L.L.)

3 Reticulo Cerebell. fibres: Reticular N. → Cerebellum.

Descend from sensory and motor area of Cortex and forming M.C.P.

4 Post. spinocerebellar tract (Propricept. of L.L.)

5 Post. ext. arcuate tract: (Propricept. of U.L.)

1 Cerebello olivary fibres: Cerebellum → inf. oliv. N

No efferent fibres

1 Dentato Thalamic F.: from dentate N → interm. ventrolateral N. of thalam.

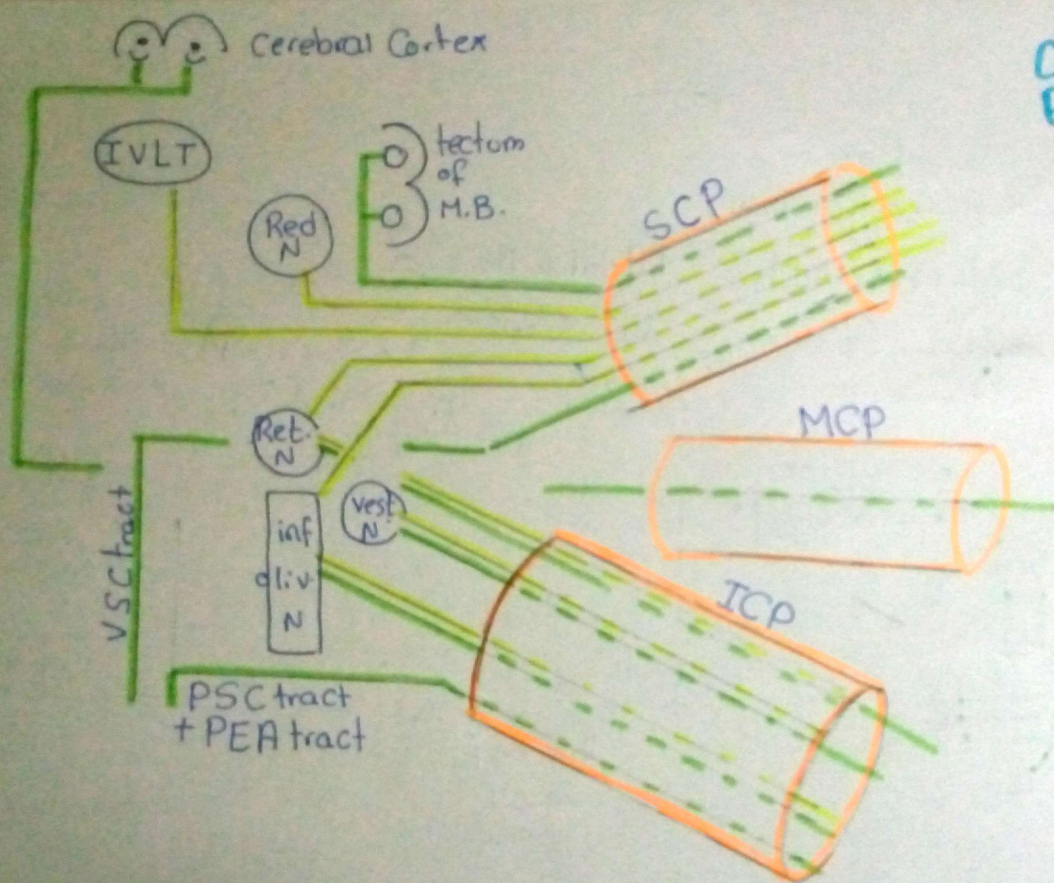
2 Cerebello vestibular f.: Cerebellum → vestib. N.

2 Cerebro-rubral F.: Cerebellum → Red. N.

3 Cerebello Reticular f.: Cerebellum → Reticul. N.

3 Dentato olivary F.: Dentate N. → inf. oliv. N.

4 fastigio reticular F: Fastigium → Ret. N.



Medial Longitud. Pundle

4

Def Bundle of ~~unmyelinated~~ myelinated n fibres along whole length of Brain Stem.

Formation

Recieve fibres from :-

- ① vestibular nucleus. [equilibrium].
- ② lateral lemniscus. [Hearing].
- ③ Superior Colliculus [vision].

Gives fibres to :-

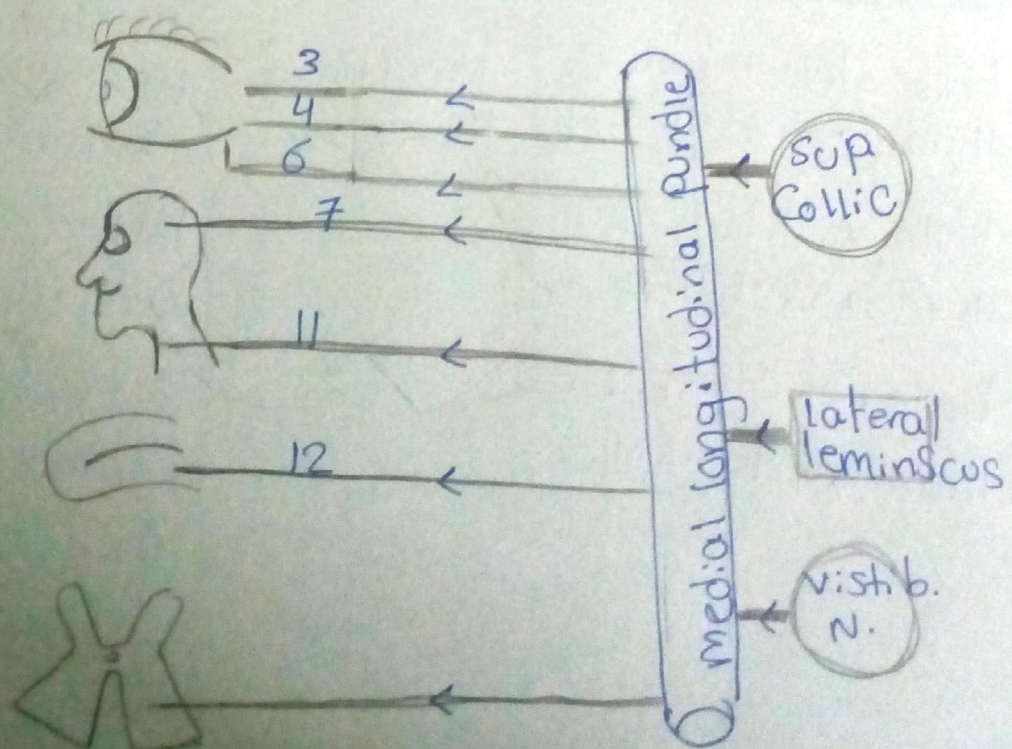
Cranial Nerves

③, ④, ⑥, ⑦, ⑪, ⑫ + AHCs

Function

Correlate The movement of eye face neck & tongue in relation to: - visual.
- Hearing
- vestibular

Stimulus.



Interpeduncular fossa

[5]

Site lies in Central Region of Base of Brain.

Relation

- Circle of Willis overlies the Fossa.
- 3rd ventricle → above it.
- Pituitary Gland → Below it.
- ant. Perforated substance → antrolateral to it

Shape Rhomboid shape

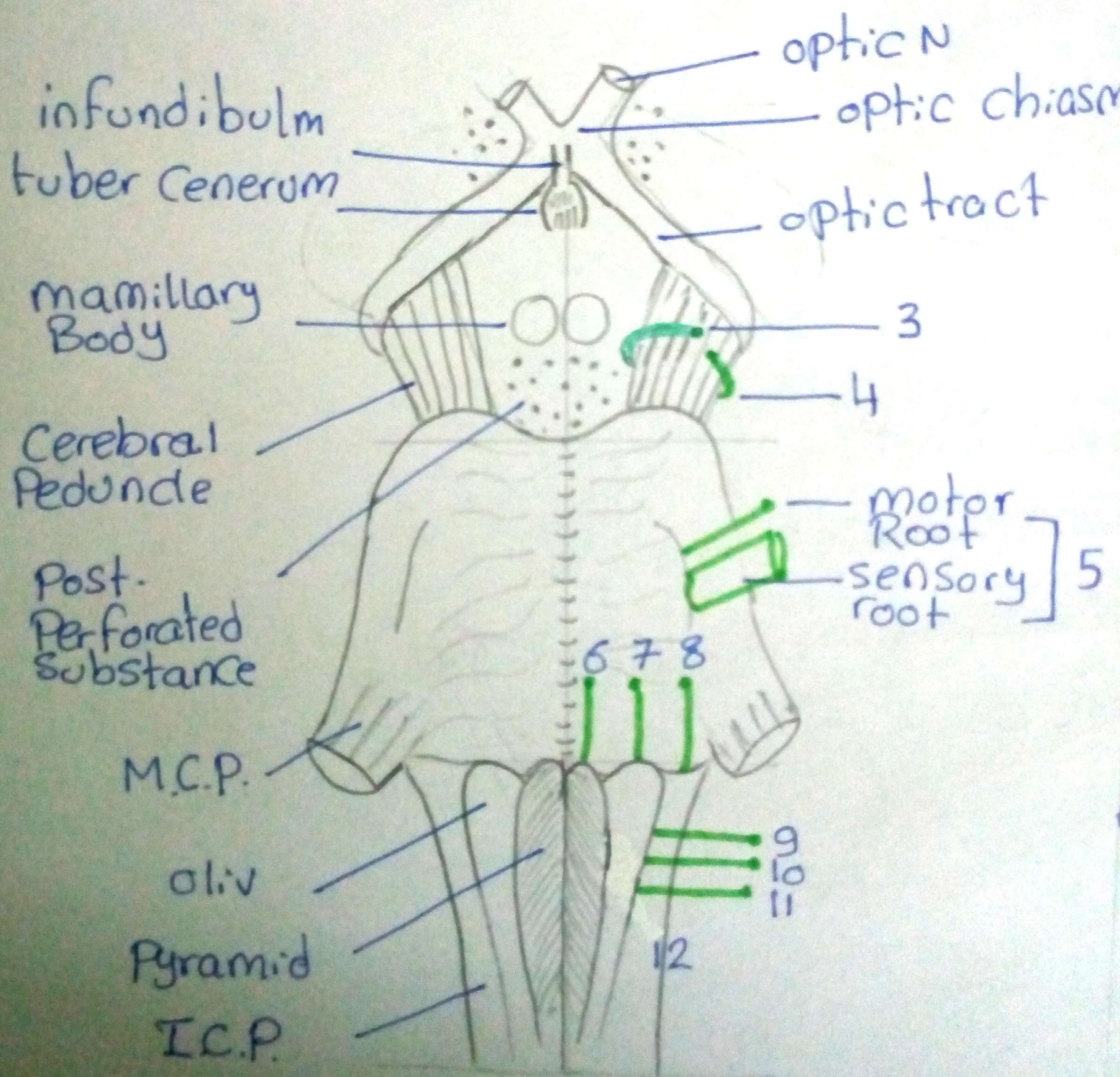
Boundaries

anteriorly optic chiasma.
antrolateral optic tracts.
Posteriorly upper Border of Pons.
Postrolateral Cerebral Peduncles.

Contents

- 1] tuber cinereum. + infundibulum.
- 2] two mamillary Bodies → part of limbic sys
- 3] Posterior Perforated substance.
- 4] oculomotor N.

* infundibulum connect tuber cinereum & Pituitary Gland.



6

Ant. Perforated Substance

Apart of limbic system

Site area present in inferior part of Cerebral Hemispheres.

Formation Perforated By: Central Brs of anterior C. A.
Middle C. A.

Relation

anteriorly olfactory stria
+ olfactory trigon

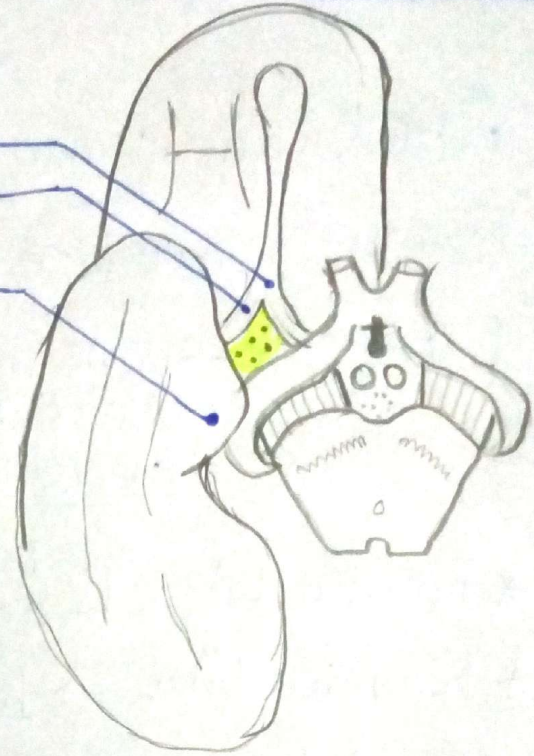
Posteriorly uncus

laterally stem of lat. sulcus.

Medially optic tract
+ optic chiasm.

Above Head of Caudate N

Below Termination of ICA.



Post. Perforated Subst.

Apart of Hypothalamus

Site in Posterior Part of interpeduncular Fossa.

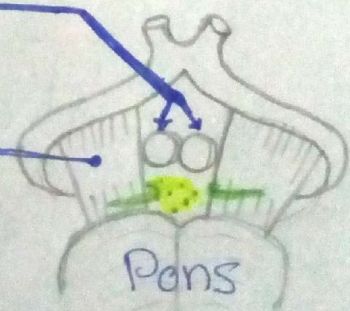
Formation Perforated By: Central Brs of Posterior C. A.

Relation

anteriorly 2 mammillary Bodies

Posteriorly upper Border of Pons

laterally 2 Cerebral Peduncles.
+ 3rd Cranial nerve



Unknown Function

Def Part of cerebral Cortex w hidden in the bottom of lateral sulcus.

Shape triangular in shape Have $\begin{bmatrix} \text{Apex} \\ \text{base} \\ \text{Surface} \end{bmatrix}$

Apex called timen insula.

Base Surrounds Circular Sulcus.

Surface - Shows many Sulci and Gyr.

- Covered By Cerebral Cortex of Surrounding lobes.

$\bar{w}$ called opercula and They are :-

* Frontal lobe

- lateral surface → Frontal operculum.
- orbital surface → orbital operculum.

* temporal lobe → temporal operculum

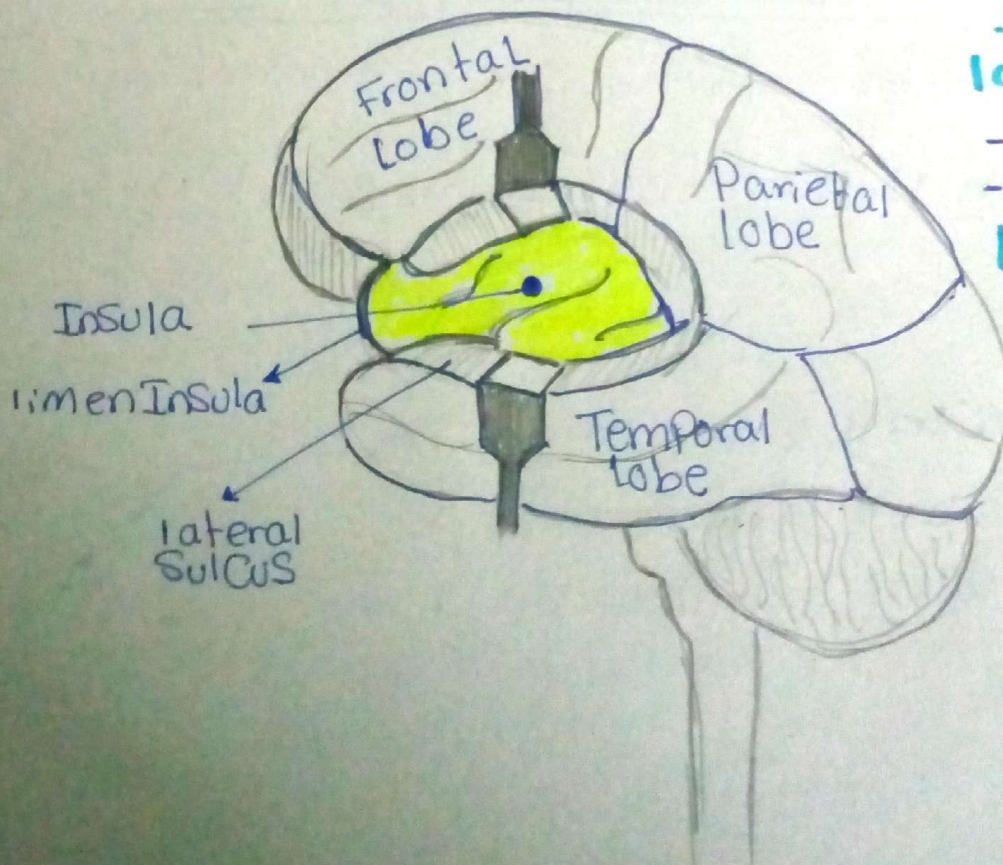
* Parietal lobe → Parietal operculum

lateral :

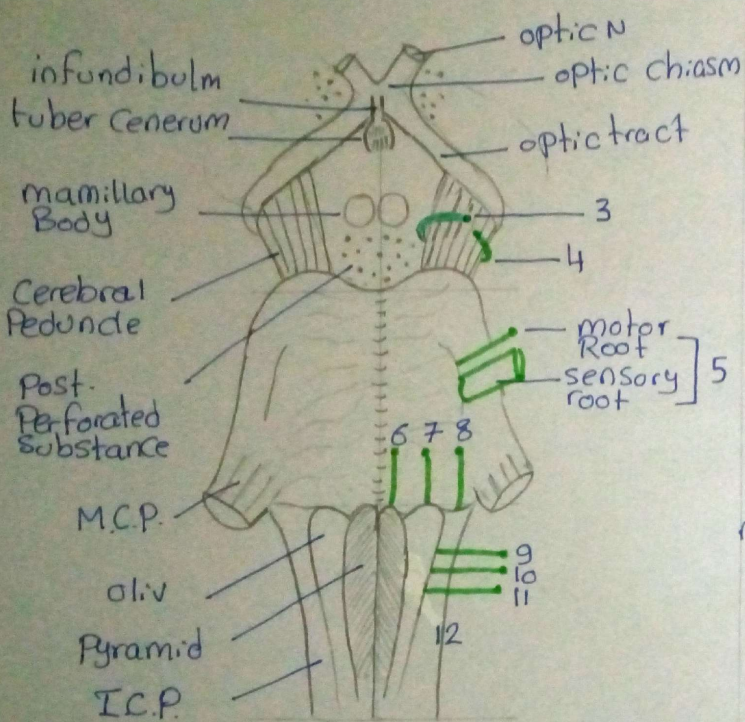
- Midd. Cereb. A.
- Deep M.C.V.

Medial:

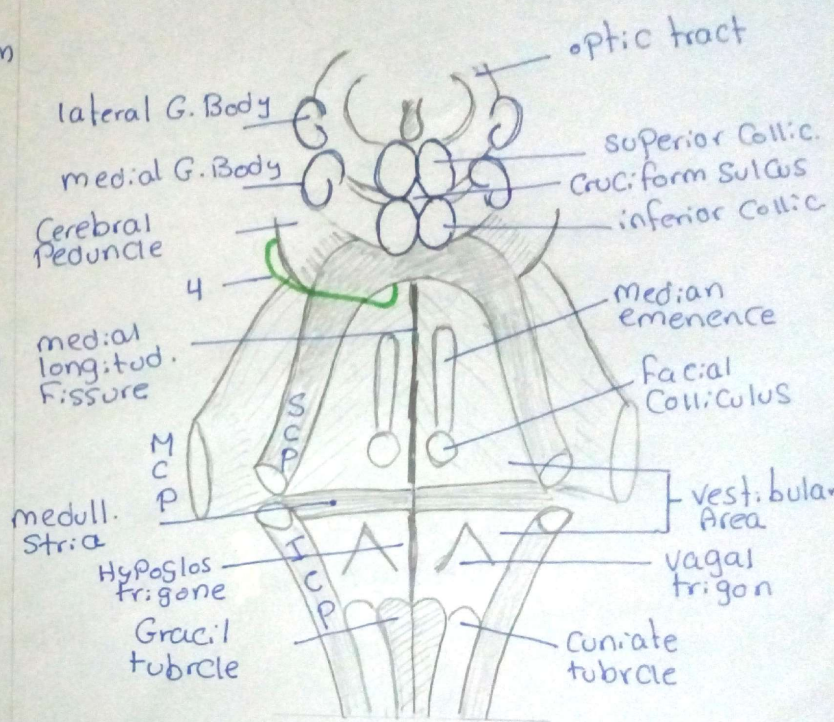
- Clostrum.
- extreme capsule.



8



Ventral Surface
+ inter Peduncular Fossa



Dorsal Surface

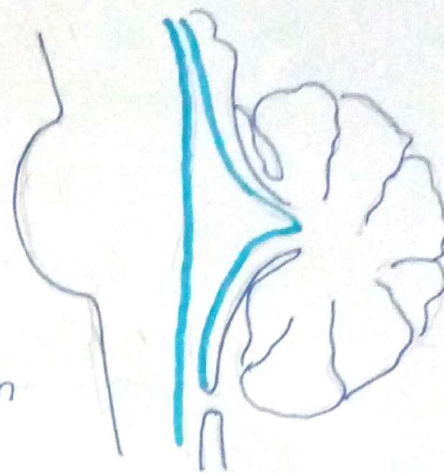
4th Ventricle

9

Defination Cavity of Hind Brain

Site [Anteriorly [Back of Pons, Medulla (open)]
Posteriorly Cerebellum

shape [Posterior view Rhomboid shape
side view Tent shape



Boundaries

[1] **Superiolateral Boundary** [one on each side]

By **Superior Cerebellar Peduncle**

[2] **Inferiolateral Boundary** [one on each side]

By **Inferior Cerebellar peduncle**

+ **Gracile & Cuneate** tubrcles in between.

Floor

Rhomboid sub divide By **medullary stria** into :

* upper $\frac{1}{2}$ $\Rightarrow$ Back of Pons

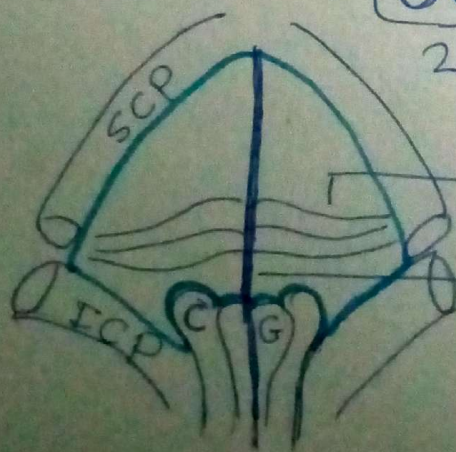
* lower $\frac{1}{2}$ $\Rightarrow$ Back of open medulla.

Each $\frac{1}{2}$ sub divide By **medial longitudinal sulcus** into :

* Right $\frac{1}{2}$

* Lt $\frac{1}{2}$

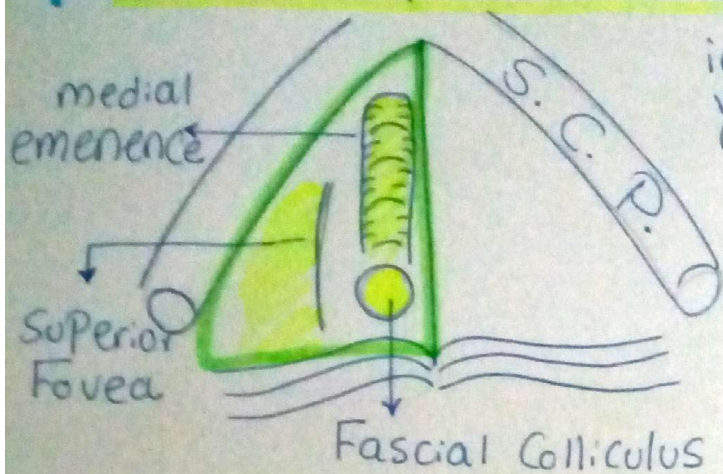
SO we have 4 quadrants of floor
2 upper quadrants + 2 lower



$\rightarrow$ medullary stria.

$\rightarrow$ median longitudinal sulcus.

10 UPPER quadrant lower quadrant



Contain depression called Superior Fovea
divide it into:

A ① medial eminence

tubular elevation closed to midline
formed by fibres of abducent N. fibres

② Facial Colliculus

swelling below medial emen.
formed by abducent N. nucleus
w encircle by fibres of fascial N.

B Superior Vestibular Area

area lateral to superior fovea
covering superior vestibular n

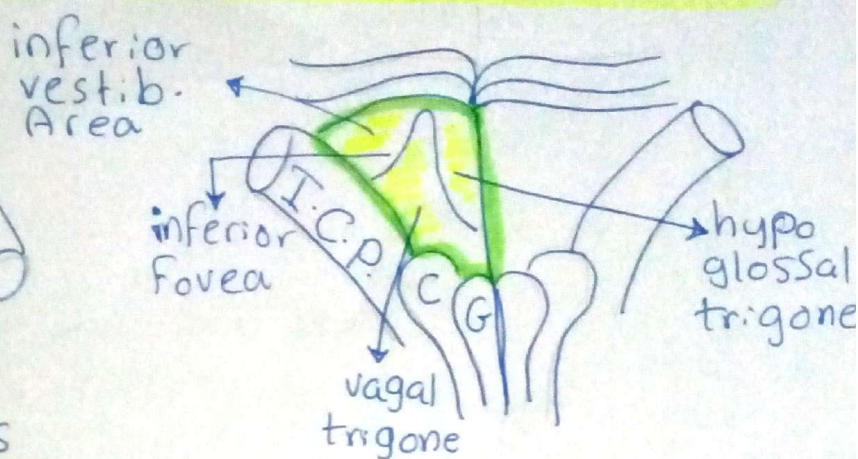
Roof

Above

① sup. medullary velum: Expanded Between

2 sup. Cerebell. Peduncles and attached post. to lingula of cerebellum * lining by ependyma.

Below ② Inf. medullary velum: Expanded Between
2 Inf. Cerebell. Peduncles and attached post. to The
nodule of Cerebellum invaginated post. By choroid
plexus.



Contain inverted V-shaped
depression called inferior fovea
divide it into

A Hypoglossal trigone

medial to inf. fovea and
overlies hypoglossal n

B vagal trigone

between two limbs of inf.
fovea and overlies:
dorsal motor n of vagus N.

C Inferior Vestibular Area

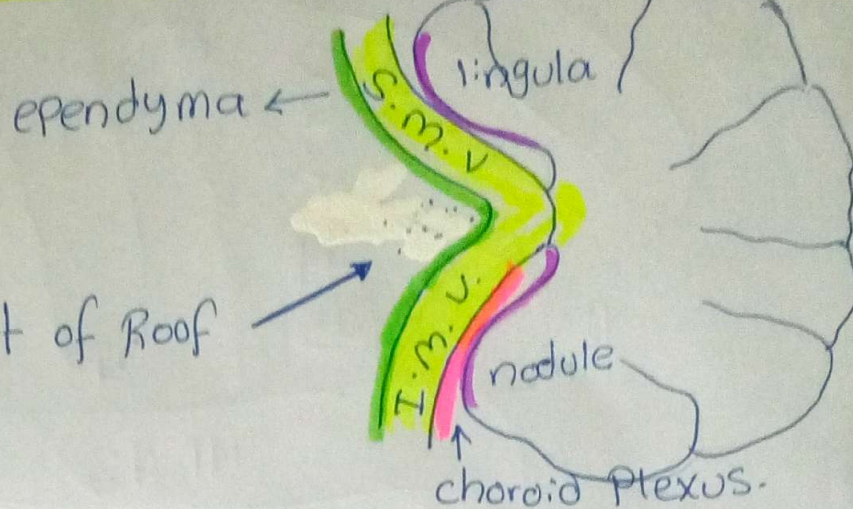
lateral to inferior fovea
covering inferior vestib. n

N.B: Sup. medullary velum ~ Inf. velum → Nervous tissue

11

[3] inferior Vermis of cerebellum [middle]

Recesses 3

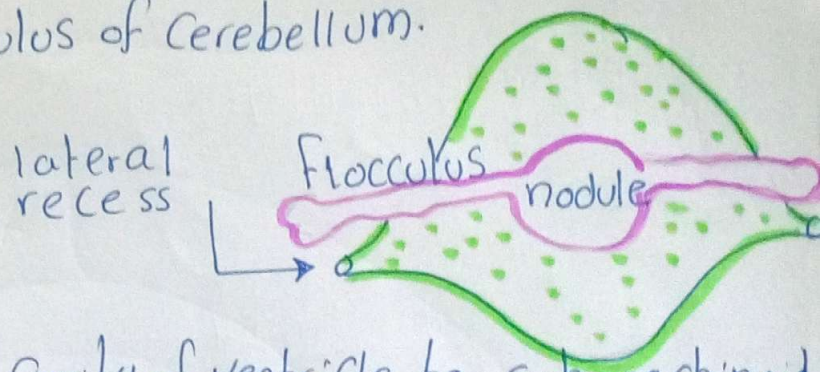


[A] Dorsal median recess:

between upper and lower Part of Roof

[B] 2 lateral recesses:

- * two tubular prolongation formed By ependyma lining ventricle
- * each extend just below flocculus of cerebellum.



Apertures 3

- * Allow passing of CSF from cavity of ventricle to subarachnoid space.

[1] Foramen Magendie [median aperture].

in lower Part of Roof [Inf. medull. velum]

[2] Foramen Luschka x2 [lateral aperture].

+ one on each side = End of lateral recess.

Communication

* upper End

Central Canal of MB

* lower End

central Canal of
closed medulla

Choroid plexus

- * 2 one on each side at lower Part of roof of 4th ventricle.
its shape inverted L shape.
together formed I shape.

* Branch from Posterior Inferior Cerebell. A.

12

Def It is the cavity of diencephalon.

Boundaries

ant wall

- 1- ant Column of fornex.
- 2- ant Commissure.
- 3- lamina terminalis.

Post wall

- 1- Habenular Commissure.
- 2- Posterior Commissure.
- 3- Pineal Body.

Floor

- 1- optic chiasma.
- 2- infundibulum.
- 3- tuber cinereum.
- 4- mamillary Body.
- 5- Post. Perf. substance.
- 6- tegmentum of M.B.

Roof

Tela chorioida of 3rd ventricle

lateral wall

- 1- HypoThalamus :
Below and in front.
- 2- Thalamus - sub Thalamus :
Above and behind

Communication

- COMMUNICATION
- [1] with lateral ventricle By means of 2 interventricular foram.
N.B. inter ventricular Foramin { ant → ant column of fornix.
 { post → ant End of Thalamus.
→ on each side
- [2] with 4th ventricle By means of Cerebral aqueduct of Sylvius.
→ Posteriorly in The median plane.

Recesses

- (A) supra optic R (C) pineal R
(B) infundibular R (D) supra pineal R

Tela Choroida of 3rd Ventricle

13

Def Double layered Fold of Pia
invaginat. below splenium
of Corpus callosum.

Site

above body of
Fornix

below

- upper surf 2 Thalami
- cavity of 3rd vent

Content

① Choroid plexus of Both:

3rd Ventricle - lateral ventricle.

② Rt, Lt internal Cerebral vein.

Join each other to form Great Cerebral vein w
Drain into straight sinus.

Choroid plexus of 3rd Ventricle

- Supplied By Post. choroidal A w

Br From Post. Cerebral A.

- Present in Roof.

Choroid Plexus of lat ventricle

- Supplied By ant ~~cerebro~~ choroidal A
Post

- Present in { Floor of Central Horn.
roof of inferior Horn.

Third ventricle



- Boundaries
- Communication
- Recesses

A - supra optic R
B - infundebular R
d - pineal R
C - supra Pn. R

ant column
of fornix
ant. Commis.
lamina term.

optic
chiasma
infundibulum
+ tuber
Cereum

mamillary
Body

tegmenum
of mid brain

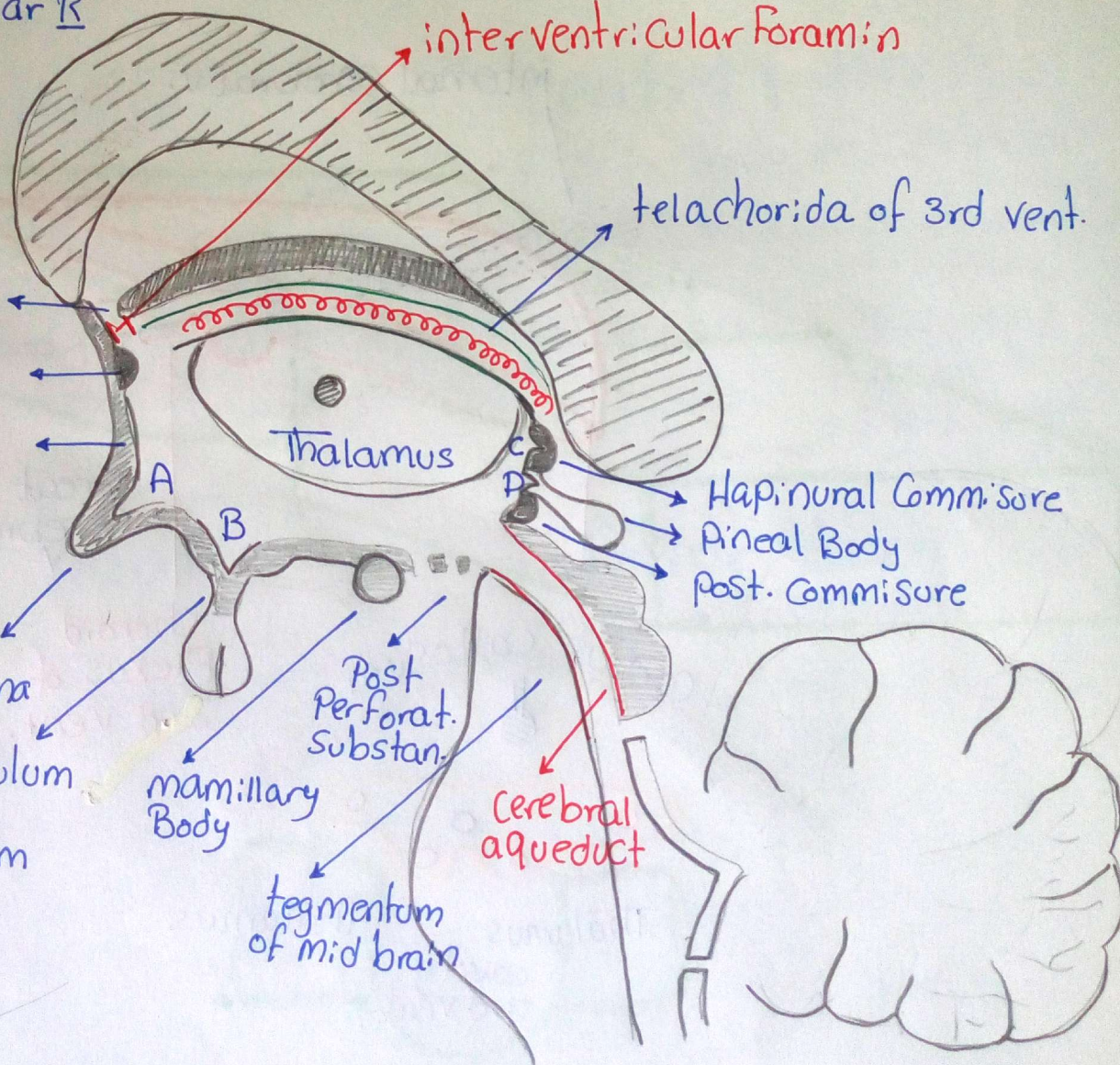
Post
Perforat.
Substan.

cerebral
aqueduct

telachorida of 3rd vent.

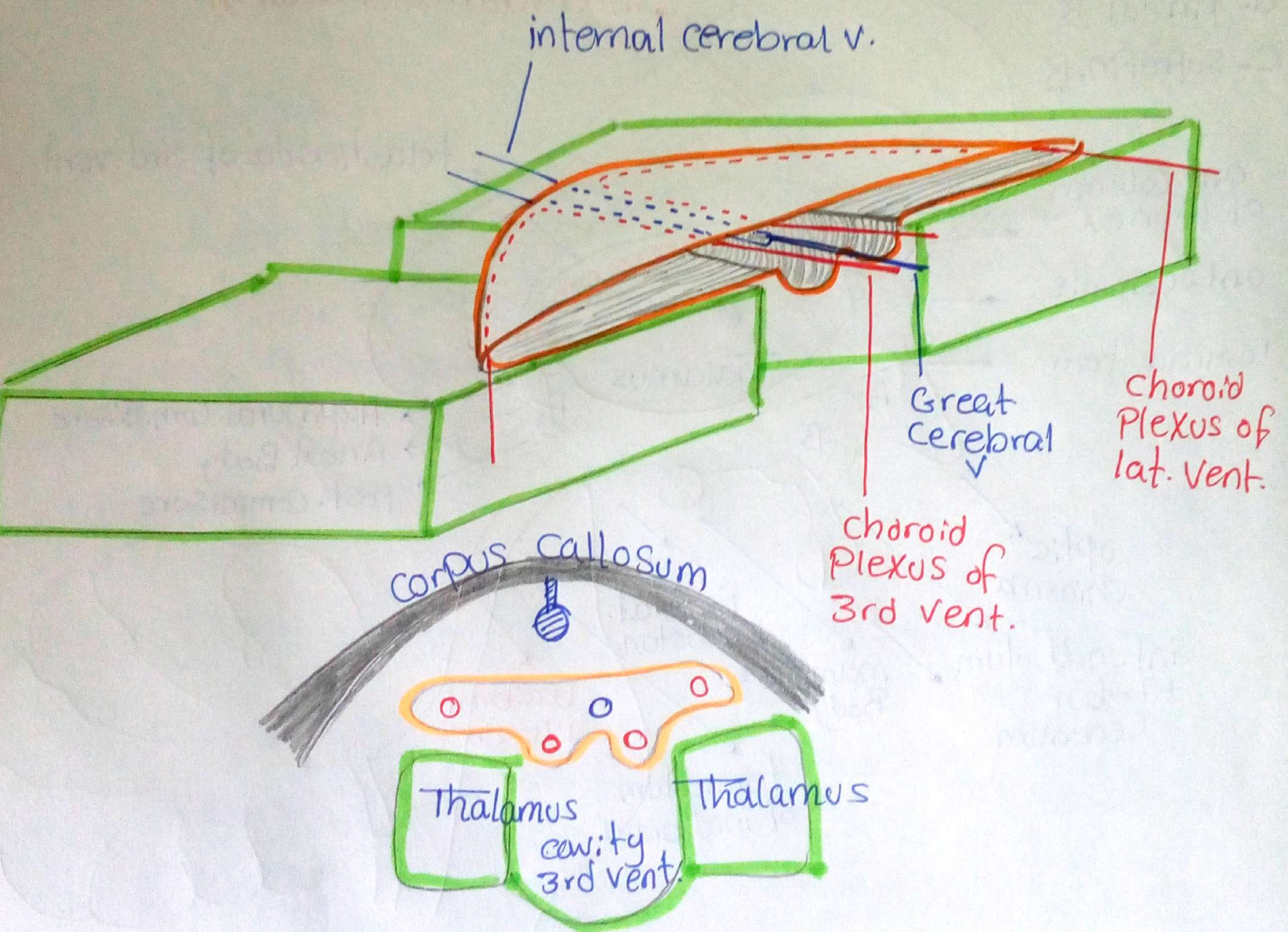
Hapinural Commisore
Pineal Body
post. Commisore

inter ventricular Foramin



Tela Chorda of 3rd ventricle

12



Lateral ventricle

13

Defin It's The cavity of telen Cephalon.

Parts

- ① ant Horn → Frontal lobe.
- ② Central Horn → parietal lobe.
- ③ Posterior Horn → occipital lobe.
- ④ inferior Horn → Temporal lobe.

Relation

Ant Horn

- ant → Gene of Corpus Call.
- Floor → Rostrum of ~ ~.
- Roof → Body of ~ ~.
- lat wall → Head of caudate.

Post Horn

- Roof
 - lateral wall
- } → Tapetum of Corpus Call.

• inframedial :-

① pulb of Post Horn

formed By forceps mag.

② Calcravis

formed by Calcrine Sulcus

central Horn

- Roof → Body of Corpus Call.
- medial wall → Septum Pell. + Fornex.
- lateral wall → Thalamus + caudate B + Stria term. + Thalm. str. V.

inferior Horn

- lat → Tapetum.
- Roof → tail of caudate + Stria termin.

• floor :-

① HippCamp. eminence

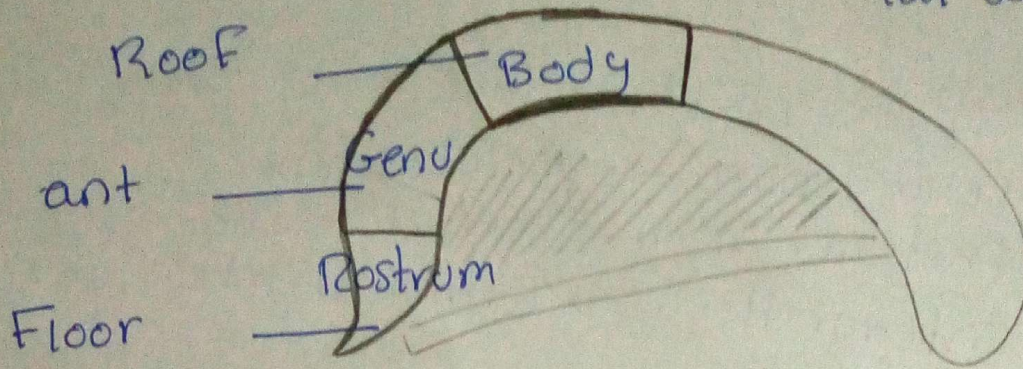
caused by para hippoc. Gyrus

② Collateral eminence

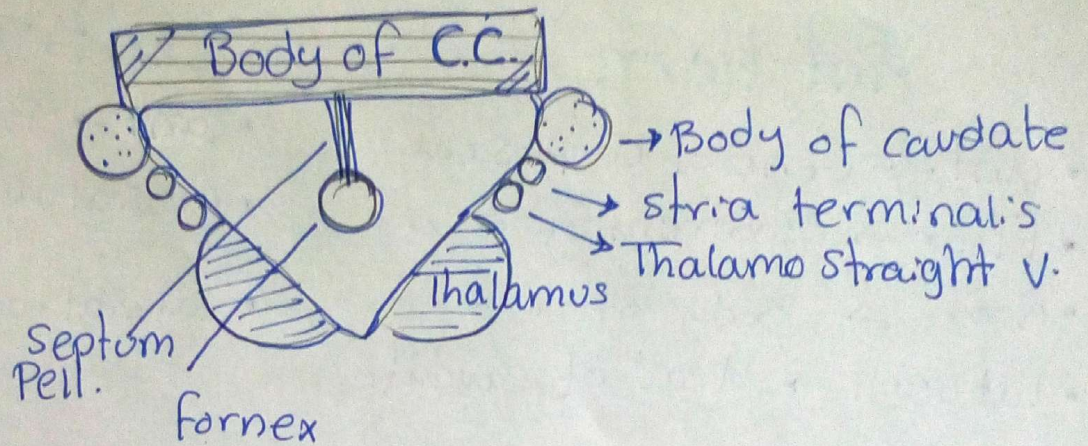
caused by Collateral Sulcus

Ant Horn

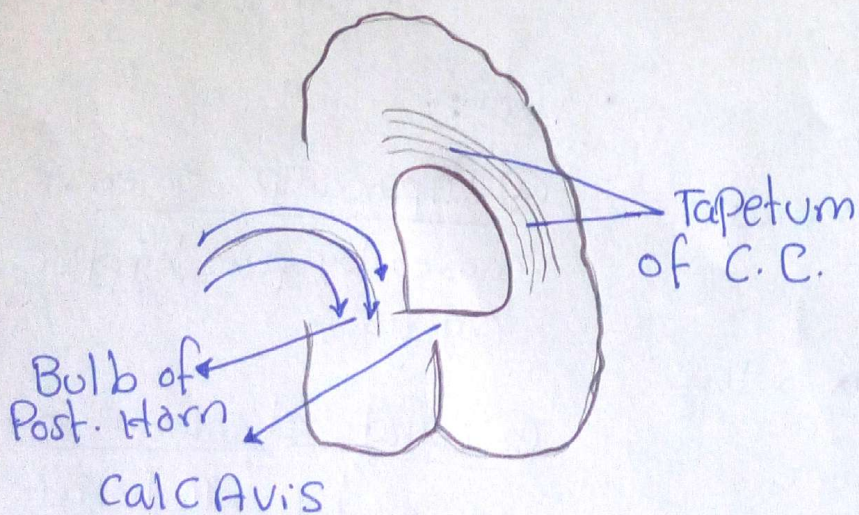
+ Head of caudate
lat wall



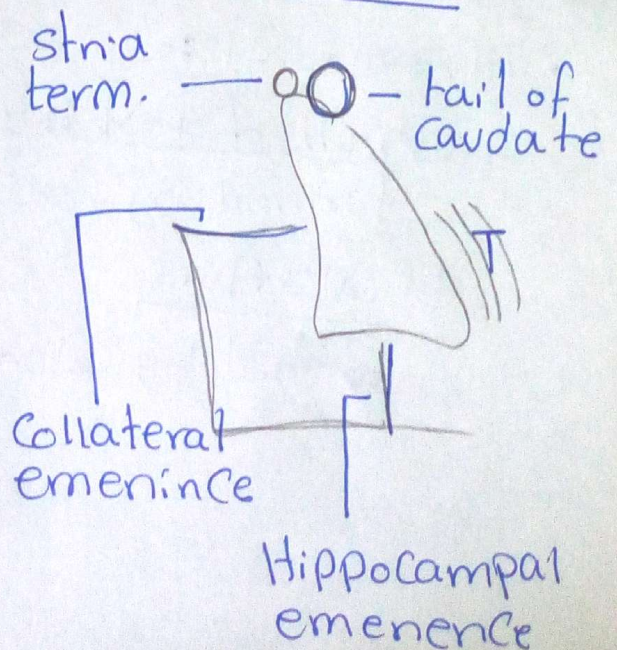
Central Horn



Post Horn



Inferior Horn



white fibres of cerebral Hemisphere.

114

3 types of fibres

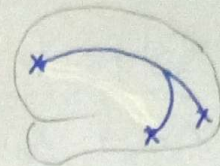
1] Association Fibres :-

Def : fibres w connect centres of The same Cerebral Hem'sphere.

Example :

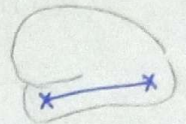
(A) Superior longitudinal Pundle :

Begin in frontal lobe and Divide into 2 Bands : 1- Superior Band w Ends in occipital lobe and 2- inferior Band → temporal L.



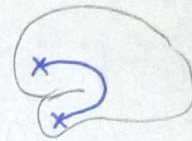
(B) Inferior longitudinal Pundle :

Begin in temporal lobe and End into occipital L.



(C) uncinate Pundle :

Connect frontal lobe & temporal lobe.



(D) Cingulum :

Begin in frontal lobe Then Curved in Cingulate Gyrus Then Pass in Para HypoCampal Gyrus to End in Temporal lobe of The same cerebral Hemisphere.



(E) Fornex .

2] Projection Fibres :-

Def : fibres w connect centres of Cerebral Hemisphere & lower Centres.

Examples : Ascending [afferent F.]

- 1 - Thalamic radiation.
- 2 - optic radiation.
- 3 - Auditory ~

Descending [efferent F.]

- 1 - Pyramidal tract.
- 2 - Cortico Pontine Fibres.
- 3 - Cortico Thalam. ~
- 4 - ~ rubral ~

[3] Commisural Fibres :-

Defination: fibres w connect centres of ~~the same~~ ^{Both} Cerebral Hemisphere.

15

Examples :

① ant Commisure:

Connect olfactory Pulb & Piriform area of Both side

② Posterior Commisure :

Connect Superior Colliculus of Both sides.

③ Hippo Campal Commisure of Fornex:

Connect Between 2 Post Column of Fornex

④ interThalamic adhesion:

Between 2 Thalami

⑤ Habenular Commisure:

Connect 2 Habenular nuclei together

⑥ Corpus Callosum:

① Rostrum ^{Form} in ant wall of ant Horn of lat. Vent.
- Connect 2 orbital surface of 2 frontal lobes.

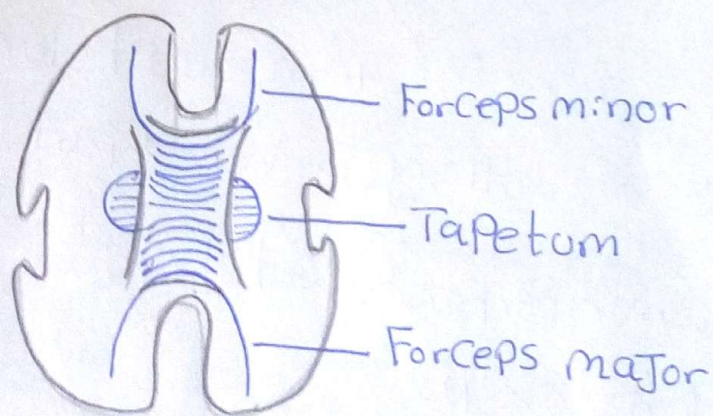
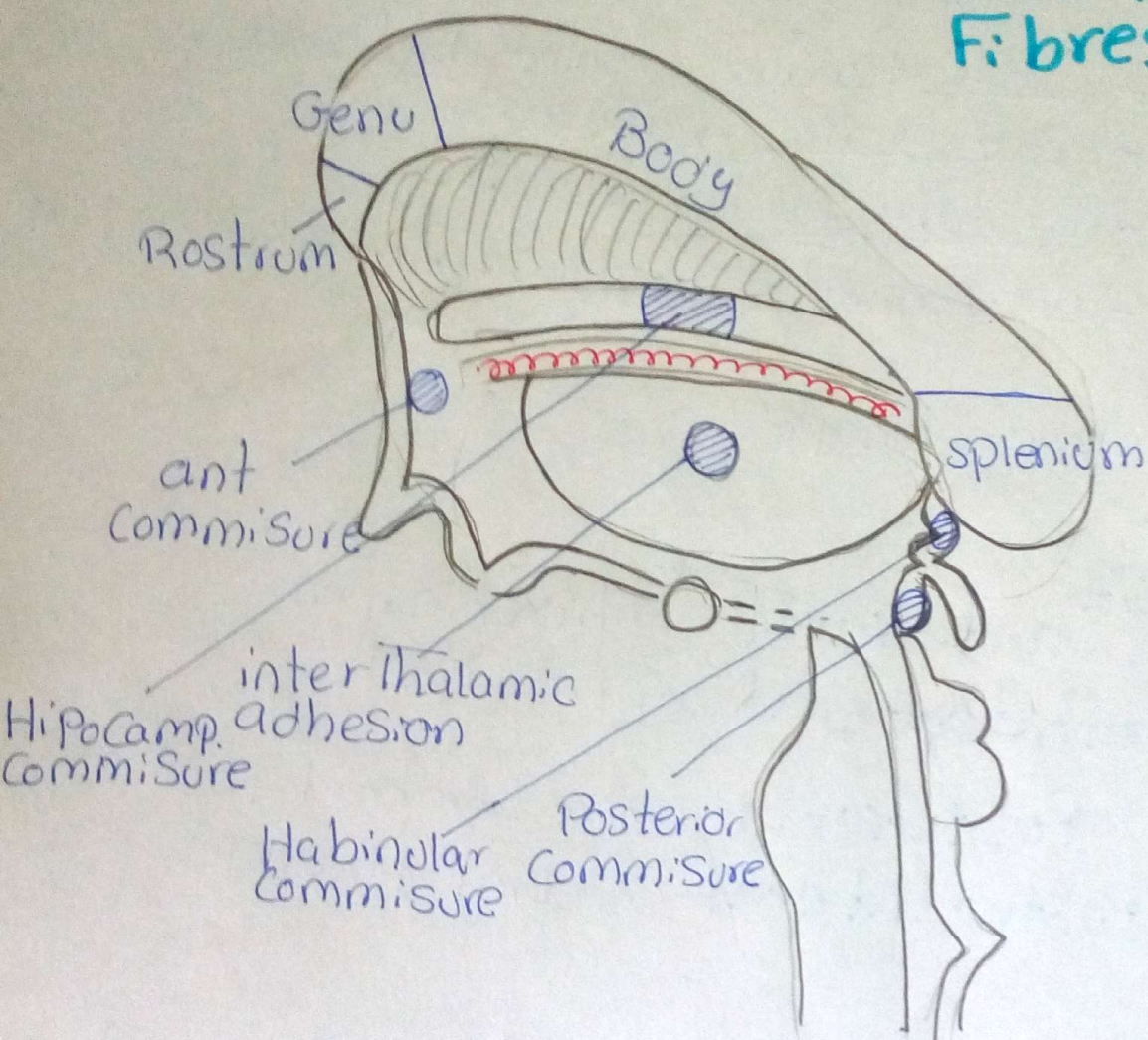
② Genu ^{Form} Roof of ant Horn of lat. ventricle.
- Connect medial surfaces of 2 frontal lobes.
* Formed Curved fibres connecting 2 Frontal Poles w lateral
Called Forceps Minor.

③ Body ^{Form} Roof of Central part of lateral ventricle.
- Connect 2 Parietal lobes together.

* form a fibres called tapetum w form Roof and lateral wall of Post. Horn & lateral wall of inf Horn of lat. v

④ Splenium - Connect occipital lobes & temporal lobes.
* Formed Curved fibres Connect Between 2 occipit Poles and Called Forceps Major

Commisural Fibres



Basal Ganglia

16

Def Group of Grey matter nuclei present deeply inside white matter of Cerebral Hemisphere.

Funct. Play an important role in Control of - Posture.
- Voluntary mov.

Parts

1- Caudate nucleus :

Shape C-shaped mass of Grey matter Have :-

: Head : large - round

: Body : long - narrow → it's a continuation of Head.

: tail : long - cylind. → it's a continuation of Body. & it terminate into amygdaloid n.

Site lateral to Thalamus and separated from lenticiform laterally By ant limb of internal Capsule.

Relation to lat. vent. Head → lat wall of ant Horn.

Body → lat wall of Central Horn.

Tail → Roof of inferior Horn.

2- Lenticiform nucleus :

Shape ^{B:} Convex lens shaped [wedge] Have :-
Apex → Directed medially.

Base (convex) → Directed laterally.

Parts → Medial Pale [Globus Pallidus] «efferent».

Site & Relation → lateral Dark [Putamen] «afferent».

lateral to [from medial to lateral]
1- Thalamus
2- Caudate.
3- internal Capsule

N.B: Caudat n + Lenticiform n = Extrapiram. Centres.

3- Amygdaloid nucleus

Centre of smell.

17

4- claustrum

unknown Function.

N.B:

Corpus Striatum

Consist of:

① Caudate nucleus.

② lenti form nucleus.

Function:

③ Grey matt. Striat. from ant. limb of internal Capsule $\bar{w}$ connect ① & ②.

① Regulation of muscle tone.

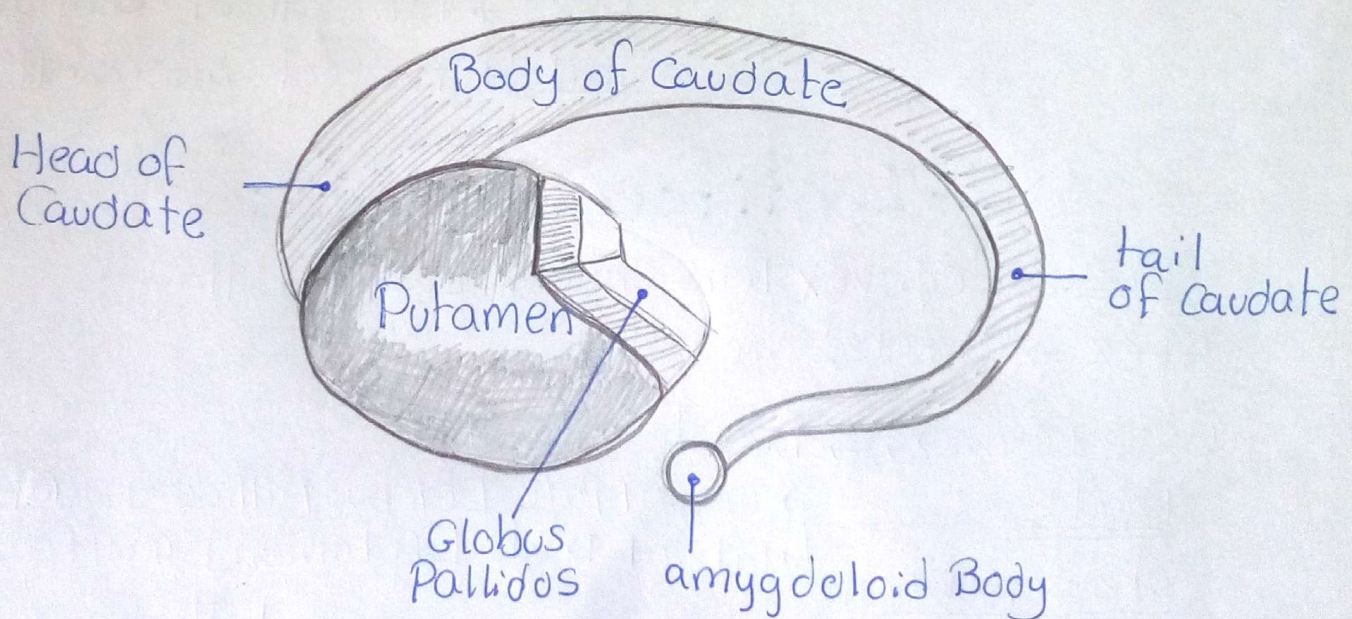
② Control Automatic Associat. movement.

Blood supply of Basal Ganglia

- Central Brs of : ① middle Cerebral A.

② Anterior ~ ~ .

③ ~ Comm. ~ .



Internal Capsule

18

Def Projection fibres (Gate) for fibres Enter or leaving Cerebral Cortex.

Shape V-shaped in Horizontal section.

Parts : anterior limb :

* Site * Between lentiform n laterally & Head of Caudate medially

* F. Contents *
1- ant. Thalam. C radiation.
2- Fronto Pontine fibres.
3- Grey matter striation to connect lentiform & Caudate forming Corpus Striatum

* A. Supply *
Medial Part Cent. Brs of Middle Cereb. A.
lateral Part C. Brs of ant. Cereb. A.

: Genu :

Junction Between ant & post. limbs.

* F. Contents *
Cortico pulbar tract.

* A. supply * Central Brs of middle Cerebral Artery.

: Post. limb : Divide into 3 Parts

Lenticulo Thalam. C

Site between Thalamus med. and lentiform n lat.

Contents
1- Cortico spinal f.
2- Cortico rubral f.
3- Sup. Thalam. C radiat.

Arterial Supply

Central Brs of middle Cerebral A.

Retro-lenticular

Site Behind lent. f. N
Contents

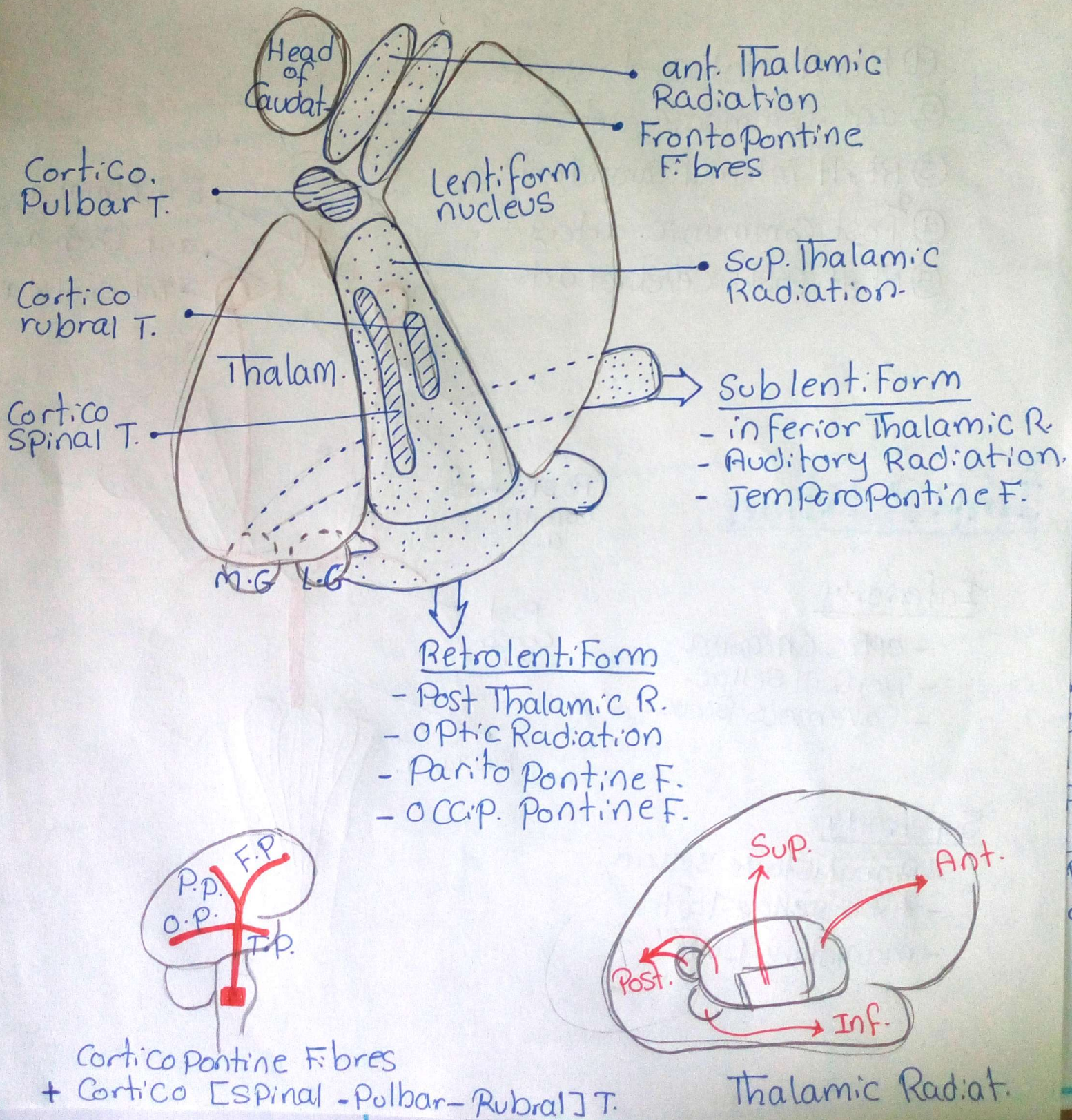
1- Parieto Pontine F.
2- occ. Pontine F.
3- Post. Th. radiat.
4- optic radiation.

Sub lenticular

Site below lent. f. N
Content

1- Temp. Pontine F.
2- inf. Thalam. C R.
3- Auditory R.

Internal Capsule



19

Thalamic Nuclei

Thalamus Divide By Y shaped white matter fibres called internal medullary stria into :-

ant part

Between two limbs of internal medull. stria contain:
anterior Thalamic nucleus

med. part

medial to internal medullary stria contain:
medial Thalamic nucleus

lat part

lateral to internal medullary stria and contain.

① lateral Thalamic Nuclei → lat. posterior Thalamic nucleus
lat. ventral ~ ~

② ventral Thalamic nuclei { ventro anterior ~ ~
ventro intermed. ~ ~
ventro post. med. ~ ~
ventro post. lat. ~ ~

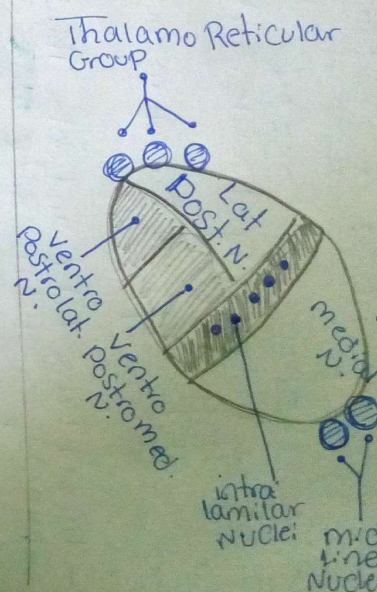
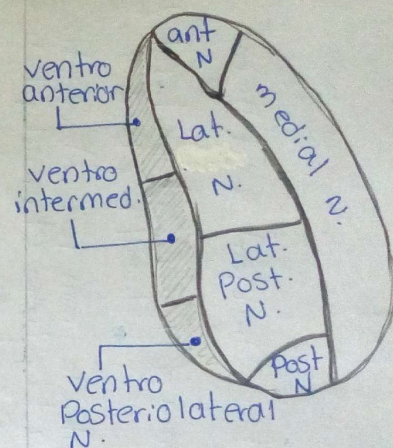
③ Posterior Thalamic nuclei — Pulvinar

④ other Groups :-

1- mid line nuclear Group.

2- intralaminar ~ ~

3- Thalamo Retic. ~ ~



CSF & Cisterns

20

Formation - Circulation

- At first CSF is filtered inside cavity of Central Part & inf. Horn of lat. ventricle from:
 - ① Choroid plexus w/ invag. in ependyma of floor of Cent. Part → lat. V
 - ② Choroid plexus ~ ~ ~ ~ ~ med. wall → inf. Horn ~ ~
 - The CSF leave lat V and enter Third ventricle from two interventric. Foramina: and in 3rd V more CSF added from Choroid plexus invaginated in ependyma of Roof of 3rd V.
 - CSF leave 3rd V and enter 4th V Through aqueduct of Sylvius: and in 4th V more CSF added By choroid plexus w/ invaginate in ependyma of inf. medullary velum.
 - In 4th Ventricle:-
 - ① Small amount of CSF Descending in Central Canal of closed medulla Then in Central Canal of Spinal Cord.
 - ② Majority of CSF Entering subarachnoid space By means of 3 Foramina Present in 4th Ventricle:
 - a - Foramen of magendie
 - b - two lateral Foramina of Lushka.
- Then CSF passing through subarachnoid space to be reabsorbed in Blood stream By means of:
- [a] arachnoid villi.
 - [b] arachnoid Granulation.
- inside Cavities of all Dural venous sinuses ESP SSS

Function

- ① Replace Lymph of CNS (no lymph in CNS).
- ② a protective water Jacket for Brain from Hits.
- ③ maintain intracranial Pressure Constant.

MCP

* 135 ml

filtered → 400 - 500 C.C. / day.

21

Subarachnoid Cisterns

Defination

its dilated spaces at base of Brain around Cerebral Hemis around Brain stem.

1- Cistern of corpus callosum:

: Site: above Corpus Callosum in relation to callosal sulcus

: lodge: anterior Cerebral A.

2- Cistern of Great Cerebral Vein:

: Site: around Great Cerebral Vein.

: lodge: G.C.V.

3- Cerebello medullary Cistern: Cisterna magna

: Site: Between medulla & inferior surface of cerebellum.

: lodge: Connected to 4th V Through 3 foramina.

* very important for Cisternal Puncture

4- Interpeduncular Cistern:

: Site: Related to Base of Brain & inter Peduncular fossa.

: lodge: Circulus arteriosus of willis.

5- Pontine Cistern:

: Site: related to Basilar Groove.

: lodge: Basilar artery - Vertebral artery.

6- Chiasmatic Cistern:

Below optic chiasma & in front

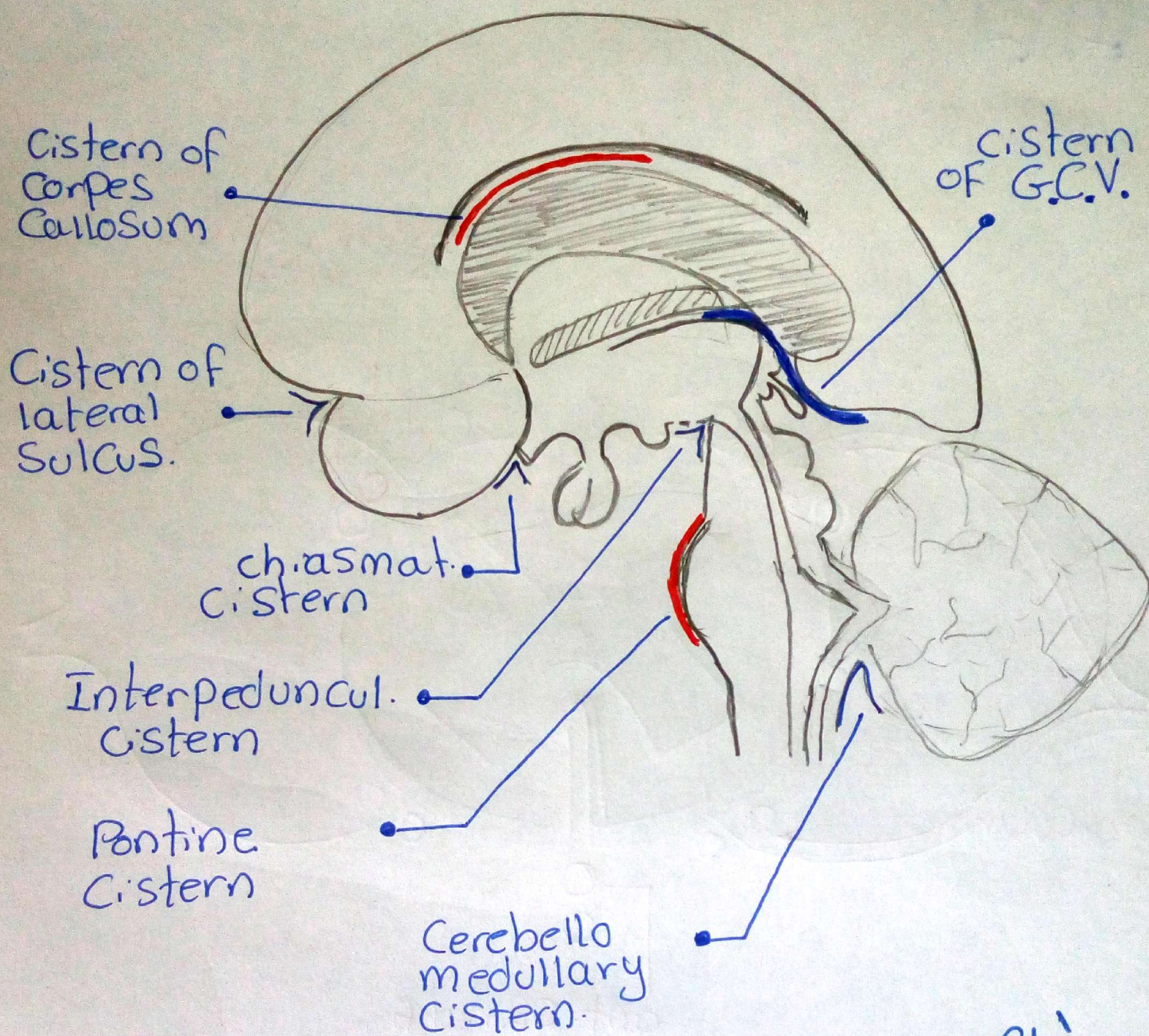
7- Cistern of lateral

Sulcus: around lateral Sulcus.

Function

① arterial pulsation in Subarach. space force CSF to seep around Cerebral Hemisphere.

② act as Cushions to Protect vital areas in Brain stem.



Subarachnoid Cisterns

	Post. Cereb. artery	Ant. Cereb. artery	Midd. Cereb. arter.
Beg.	at upper Border of Pons as two terminal Brs of Basilar artery.	Below ant. Perforating subst. as one of 2 terminal Branches of internal Carotid artery.	Below ant. Perforating subst. as larger Br. of 2 terminal Brs of internal Carotid Art.
Course	Curved Backward and laterally on Cerebral Peduncles Then passes Below Splenium of Corpus Call. to enters ant. part of Calcarine Sulcus.	Runs upward above optic nerve to reach medial surface of cereb. Hemisph. Then Runs Backward above Corpus callosum at Callos. Sulcus till parieto occipital Sulcus.	Runs laterally in stem of lat. Sulcus Then Runs Backward in Depth of Post. ramus
Termin.	Terminate By dividing into to term. Brs : - one Runs in post Calcarine Sulcus. - The other Runs in parieto occip. ~	Terminate By passing upward above Splenium of Corpus Call. Then passing forward in front of parieto occip. Sulcus on lat. Surface.	Terminate By Being on surface of insula and breaking down into Brs supplying insula.
Cortical Branches	Supplying Cerebral Cortex of :- 1- tentorial Surface <u>exc</u> temporal Pole. 2- Occipital lobe [all surfaces]. 3- narrow strip along inf. Border of lateral Surface. Callosal Branches :- supplying Splenium of Corpus Callosum.	Supplying Cerebral Cortex of :- 1- medial surface From Frontal Pole into parieto occip. Sulcus. 2- lateral Surface upper 1" till parieto occipital Sulcus. 3- medial Hare of orbital Surface. Callosal Branches :- supplying all parts of Corpus Callosum except → splenium.	Supplying Cerebral Cortex of :- 1- lateral Surface <u>except</u> @ upper 1" till parieto occip. sul. @ narrow Strip along inf. Bord. @ Frontal Pole. @ Occipital lobe. 2- lateral 1/2 of orbital surface.

Central Branches

P.P.S.

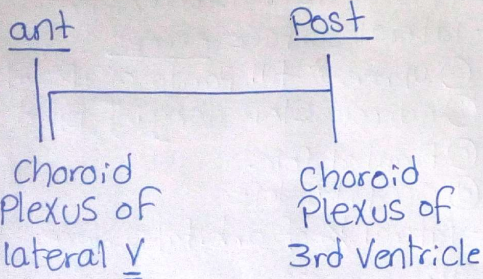
Short medial Group

- Cerebral Peduncle.
- mamillary Body.
- ant. part of Thalamus.

Long Lateral Group

- Post. part of Thalamus.
- Geniculate Body.
- Pineal Body.

Choroidal artery



Through Ant. perf. subst.

- ant. part. of Corpus Striatum:

lenticuliform. N

Caudate N

- lateral part of ant. limb of Internal Capsule

Through Ant. perf. subst.

- Corpus striatum.

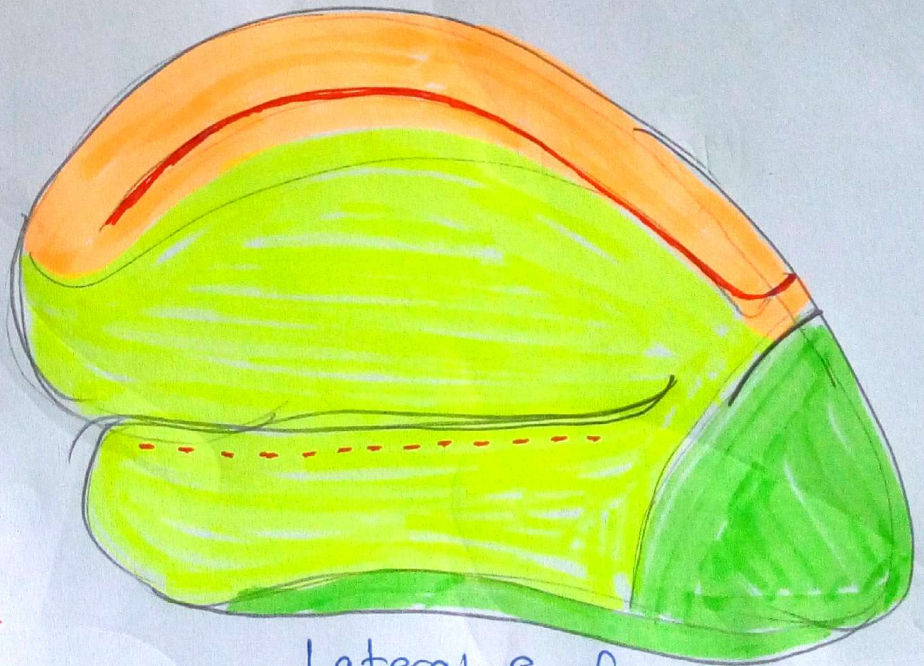
- Genu + post. limb of Internal Capsule.

- medial part of ant. limb of internal Capsule.

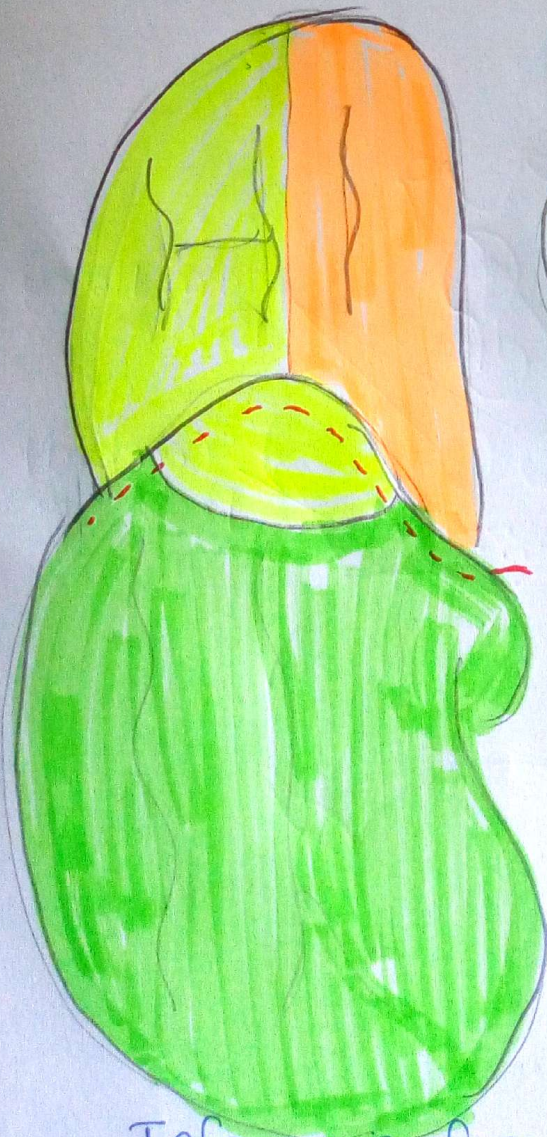
Medial Surface



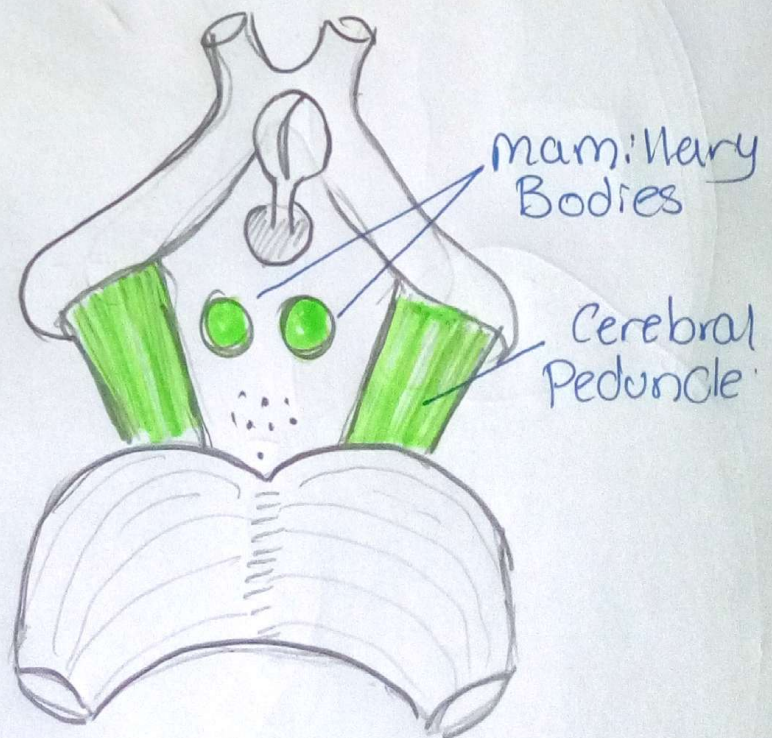
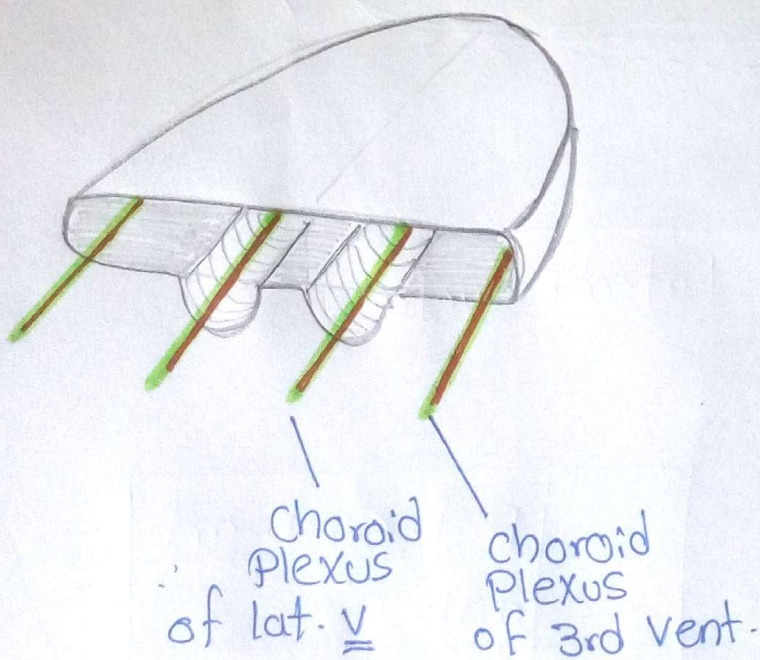
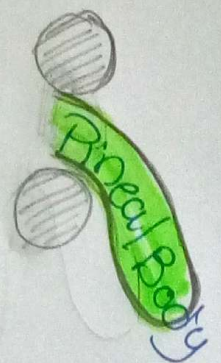
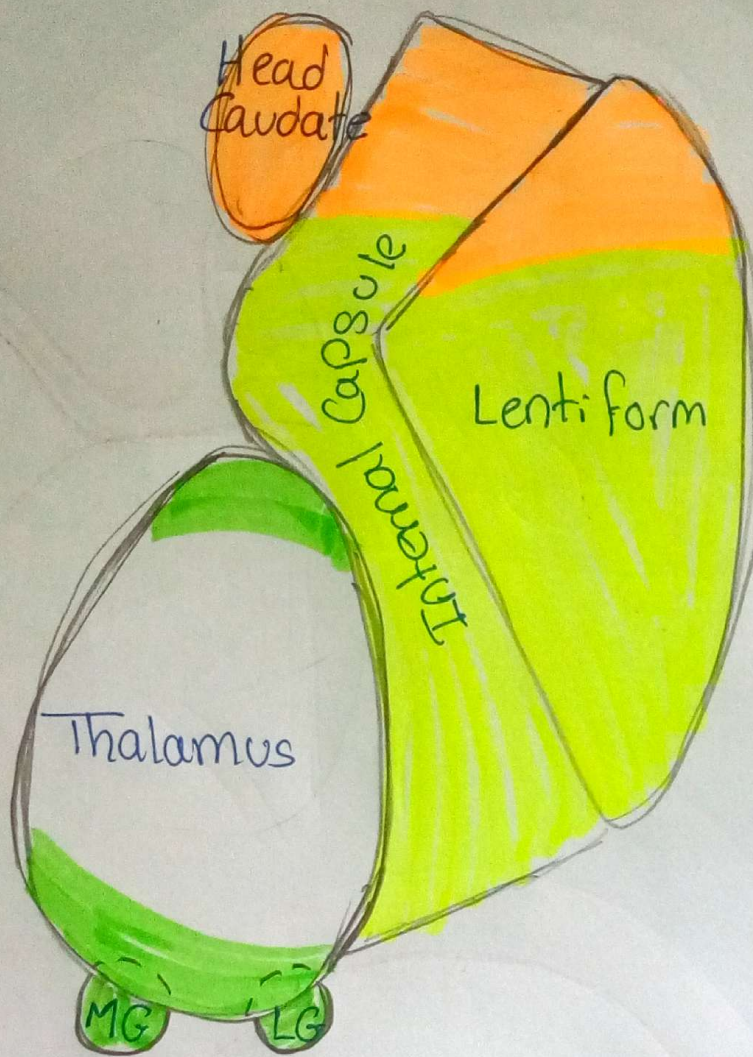
Lateral Surface



Inferior Surface



	Post. Cereb. art.
	ant. ~ ~
	midd. ~ ~



Circle arteriosus of willis

24

Def arterial anastomosis Bet 9 arteries.

Site in midline around interpeduncular fossa.

Formed by

- ① Rt, Lt ant Cerebral arts.
- ② ant. Commun. artery.
- ③ Rt, Lt internal Carotid arts.
- ④² Post Commun. artery.
- ⑤ Rt, Lt Post. Cerebral arts.

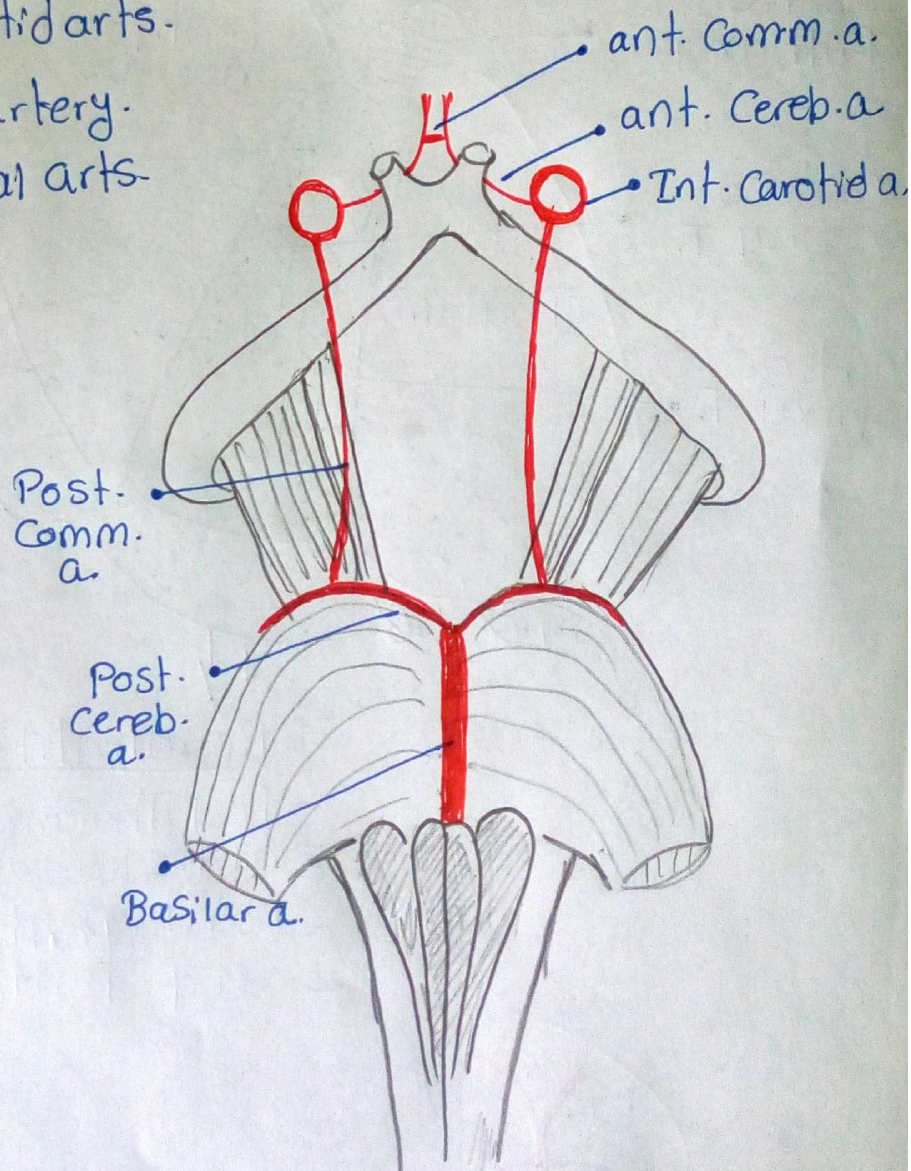
Imp. Relation

Inferiorly

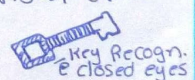
- optic chiasma.
- Dorsum Sellae.
- Cavernous Sinus.

Superiorly

- Tuberculum sellae.
- Pituitary stalk.
- mamillary Body.



- Primary Motor Area	- Precentral Gyrus. - Paracentral lobule.	- Carrying individual movement.	4
- Pre motor Area	- Anterior to Prim. M.A.	- store programmes of motor Activity w Depend on past experts.	6
- Frontal Eye Field	- Post part of middle Frontal Gyrus.	- lateral Deviation of Both eyes to opposite side.	8
- Brochu's Area Motor Speech Area	- Post. part of Inferior Frontal Gyrus.	- Coordination muscle used in Speech.	44, 45
- Pre Frontal Cortex	- Frontal Pole.	- makeup of individual's personality	9, 10 11, 12
- Primary Sensory Area	- Post Central Gyrus. - Para Central lobule.	- Preception of all sensation from opposite side of Body.	3 1 2
- Somatic sensory Associated Area.	- Superior Parietal lobule - Supra marginal Gyrus	→ interpretation of sensations → Received By area 312	→ 5, 7 → 40
- Primary Auditory Area	- middle of Superior temporal Gyrus	- Preception of all sounds from Both Ears. Especially opposite ear.	41 42



- Auditory Associat. Area	- Post part of Superior temporal Gyrus.	- Recognized of Sounds. - Sensory Speech Area.	22
- Primary Visual Area	- Lips of Calcarine Sulcus	- Perception of light.	17
- Visual Associated Area.	→ above and below area 17. → Angular Gyrus.	→ Recognized what we see. → Recognized written lang..	→ 18, 19 → 39
- Primary Gustatory Area.	- lower End of Post Central Gyrus	- Discriminations of all taste Sensation.	43
- Primary vestib. Area	- ant part of Superior temporal Gyrus	- Awareness of Position of Body in space	
Primary - olfactory Area	- uncus	- olfaction	

29

Pyramidal tracts

Include tracts w originate from Cerebral Cortex to Control motor nuclei of cranial nerves in Brain Stem and AHCs of S.C.

Consist of :-

upper motor neuron :

- (A) Cortico spinal tracts (Descending to Control AHCs of S.C.)
- (B) Cortico Bulbar tracts (Descending to Control motor nuclei of CN)

lower motor neuron :

- (A) motor nuclei of cranial nerves in Brain stem.
- (B) AHCs of spinal cord.

Pons → Bas.
Medull → vent

Arterial supply

المشيم مع الشرس بالأسلاك
كان يتبع في قلوبنا نفس
Arterial supply بالأسلاك

* Cortico Spinal tract *

Function

Carry impulse Control voluntary muscles w facilit. to tone and muscle movement.

ORIGIN arise as axons of giant Pyramidal cells of Betz mainly from upper $\frac{2}{3}$ of motor area of Precentral Gyrus.

Pathway (In)

- Cerebral Hemisph. :- fibres Descend in Corona radiata Converge towards internal Capsule
- Internal Capsule :- fibres Descend in Post limb of internal capsule Converge toward mid Brain.
- mid Brain :- fibres Descending in Crus cerebri [middle $\frac{3}{5}$]
- Pons :- fibres Descending in Basilar part of Pons separated by transverse Pontine fibres.
- upper part medulla :- fibres Returned Collected forming Compact Called Pyramid in ant Part of medulla

Lower Part
- Medulla :-

26

(a) 75-80% of fibres Crossed Through Pyramidal decuss. to opposite site & continue downward as Crossed Pyram. tract

(b) 15-20% of fibres descending ~~to~~ not crossing as Direct Pyramidal tract.

- Spinal Cord :-

(a) Crossed Pyram tract Descend in lat Column of white matter and Relay on ALTcs of same side.

(b) Direct Pyram. tract Descend in lat column of white matter and Crossed to opposite site to Relay in ALTcs of opposite site.

* Cortico Pulbar tract *

medial

end in Cranial nerve nuclei w motor Controlling eye movem. 3, 4, 6.

origin fibres arise from as axons of area 8 [Frontal motor eye field]. Cells

Pathway

① Cerebral Hemis. fibres Descend in Corona radiata Then to genu of int. Capsule.

② mid Brain fibres Descend in medial part of Crus cerebri

③ They End by relay in motor nuclei of cranial 3, 4, 6 of opposite site.

lateral

end in Cranial nerve motor nuclei all exc 3, 4, 6
ex 5, 7, 9, 10, 11, 12

origin fibres arise as axons of cells in lower 1/3 of motor area (4)

Pathway

① Cerebral Hemis

The same

② mid Brain

Postero lateral to Pyram. t.

③ Pons, medulla

end ~~at~~ By Relay on motor nuclei of cranial nerves 5, 7, 9, 10, 11, 12 of opposite site.

